control computer 13 in the controller 12.

The control computer 13 controls the holographic stereogram producing unit 14 such that a respective element display image based on the element hologram image data D5 supplied from the image data processing unit 11 is exposed and recorded sequentially as hologram elements in a strip-like pattern on the hologram recording medium 4 mounted on one part of the holographic stereogram producing unit 14. During this operation, the control computer 13, as will be described later, controls operations of respective components and mechanisms in the holographic stereogram producing unit 14.

In the holographic stereogram producing unit 14, respective members that constitute the optical system 15 are disposed as supported on a support plate (optical table) 18, and this support plate 18 is mounted on a housing 20 via dampers 19.

The optical system 15, as shown in FIGS. 1 and 2, includes an incident light optical system 15A, an object light optical system 15B and a reference light optical system 15C. Of these optical systems, in order to enhance interference between its object light L2 and its reference light L3, the object light optical system 15B and the reference light optical system 15C are constructed such that respective light paths of the object light L2 and the reference light L3 to an exposure/recording portion P1 become substantially identical. By the way, because the holographic stereogram producing device 10 uses the hologram recording medium 4 which is a photosensitive material, the housing 20 has a light-tight structure at least for its optical system 15.

The incident light optical system 15A has a laser source 21 for emitting a laser beam L1, a shutter mechanism 22 for allowing the laser beam L1 to transmit or interrupt, and a half mirror 23 for splitting the laser beam L1 into an object light L2 and a reference light L3.

The laser source 21 is constructed using a laser device capable of emitting, for example, a single wave and high interference laser beam L1 such as a semiconductor excited YAG laser device, an air cooled argon ion laser device, an air cooled krypton laser device or the like.

The shutter mechanism 22 is opened and closed in response to a control signal C1 output from the control computer 13 corresponding to an output timing of the element hologram image data D5 so as to allow for the laser beam L1 to fall on the hologram recording medium 4 positioned at the exposure/recording portion P1 via the optical system in the subsequent stage, or to interrupt the laser beam L1 on the way to the hologram recording medium 4.

The half mirror 23 splits the laser beam L1 incident thereon into a transmission light and a reflection light. The laser beam L1 is thus used as the transmission light that is the object light L2 and as the reflection light that is the reference light L3. These object light L2 and reference light L3 are directed to enter the object light optical system 15B or the reference light optical system 15C provided in the subsequent stages, respectively.

Further, the incident light optical system 15A may be provided with a full-reflection mirror and the like in

order to change the direction of the laser beam L1 to make the lengths of optical paths of the object light L2 and the reference light L3 become identical. Still further, the shutter mechanism 22 may be constructed with, for example, a mechanically driven shutter member or an electronic shutter using an AOM (acousto-optic modulation). Namely, the shutter mechanism 22 may be of any type if operable to open and close so as to transmit and interrupt the laser beam L1.

The object light optical system 15B is constructed by disposing its optical components such as a full-reflection mirror 24, a first cylindrical lens 25, a collimator lens 26, a projection lens 27 and a second cylindrical lens 28 sequentially along an optical axis thereof.

The full-reflection mirror 24 reflects fully the object light L2 transmitted through the half-mirror 23. The object light L2 having been reflected on the full-reflection mirror 24 is supplied to the first cylindrical lens 25.

The first cylindrical lens 25 which is constructed in combination of a convex lens and a pin hole diffuses the object light L2 having been fully reflected on the full-reflection mirror 24 in one dimensional direction corresponding to a width of a display screen of a transmission type liquid crystal display 29 which will be described later.

The collimator lens 26 collimates the object light L2 having been diffused by the first cylindrical lens 25 and directs a collimated beam to the transmission type liquid crystal display 29.